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ABSTRACT

The school site can become a resource capable of enriching both the educational and community environment. However, many different local and regional factors must be identified and interactions studied in order to develop a sound basis for effective school site selection, planning, and development. This document provides background material about the importance of environmental factors and states the importance of developing the school site for broadly based community uses. Extensive guidelines are provided for planning or improving school sites and for the operation of an educational planning committee. (MLF)

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THE EDUCATIONAL SITE PLANNING PROCESS

The purpose of education will be better achieved when public policy reflects the tenet that WHAT HAPPENS TO LAND HAPPENS TO PEOPLE

by

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THE EDUCATIONAL SITE PLANNING PROCESS

VOLUME I Rationale For Site Planning

INTRODUCTION

The school site is an important facility for education in its own right. The location, size, and general character of the school site affect not only the quality of education within the school, but the quality of life and surrounding property values. In turn, the site is affected by what happens in the outside world. To become a resource capable of enriching both the educational and community environment, many different local and regional factors must be identified and interactions must be studied in order to develop a sound basis for effective site selection, planning, and development. With this study, both new and future sites, as well as sites of existing schools in older neighborhoods, can be developed into new educational ecosystems which would produce a more desirable kind of community life.

THE IMPORTANCE OF ENVIRONMENTAL EDUCATION

A hundred years ago this was a rural nation and, while men knew little about the science we call ecology, they knew the moods of the land and how to harvest abundant crops from it. They knew its feel, its smell, and even its taste. Their lives were intimately tied to it, and if they misused it, the reason they did so was because of a shortsighted view of its importance. They could perhaps be forgiven because land was a plentiful commodity.

Today man is more of an urban creature and the shortcomings of his forefathers and of himself are beginning to take their toll.

Land is no longer in abundant supply. It has been frightfully abused and wasted.

Although we still do not have many of the answers to the earth's natural processes--which we need for a complete understanding of how to husband our remaining resources--neither do we have the excuse of total ignorance of those processes as did our ancestors. We know for a certainty many of the things we do wrong, and yet, the misuse of our environment continues at an alarming rate.

Urban man, while gaining technical insight, has lost the basic personal feel of the land that he once had, simply through lack of actual contact with it. Yet this personal attachment is necessary, indeed essential, if we are going to manage our environment to advance human welfare.

Day by day, we are increasingly called upon to make political and economic decisions concerning the land and its resources. Each decision becomes more technical and complex.

Many of these basic decisions seem to have little or no relevance to conservation of natural resources. They involve highways and city streets, curbs and gutters, zoning and code enforcement, community blight and urban renewal, taxes and user charges, as well as the more obvious environmental resource questions such as air and water quality, erosion control, and recreational development.

But the land planner knows that all of these questions are interrelated, that they form as complex a chain as any in nature, and that only with an understanding of how the parts fit, and how they affect one another, can the total environment best be served and utilized by man.

There is great need for us to develop a systematic approach to the solution of environmental problems which we face today and will increasingly face in the future. That solution will come only if we can make citizens aware of the importance of natural resources and how each action of man is related to and is built upon these natural processes. Further, citizens must be given a feeling of confidence that they can be influential in decision-making on realistic environmental improvement programs.

In developing an environmental education program to provide the necessary experiences and knowledge, certain social and scientific understandings must be presented. Some of these concepts may best be presented in the classroom, but others may be more effectively taught beyond the four walls of the school building.

Traditionally, most school systems have given little or no consideration to ways in which the school site can be used to enhance the educational process. For this reason, many of the educational features of school sites are lost during the construction stage. The site is leveled, natural vegetation is stripped from the land, and natural water areas are drained. This approach to school site development results in reduction of the educational potential of the site and degradation of its aesthetic appeal. If we are to alter this trend of disregard for the environment, a concerted effort must be made to plan for, develop, and maintain learning laboratories on school sites.

In planning learning laboratories on school sites, a committee composed of a school board member, the school principal, an architect, teachers representing various areas of the curriculum, students, and

other citizens should be established to develop educational specifications for the site. A school site committee will not only generate a larger number of creative ideas, but will also enhance the use of the site, discourage vandalism, and perpetuate its value to the community.

It is important that we develop in our youth a greater interest, awareness, understanding, and respect for our environment. In this regard, we should continue to teach indoors that which can best be learned there, and teach in the out-of-doors that which can be best learned in that environment.

Our communities provide few public opportunities for youth to improve their biosphere. School sites offer many opportunities for youth to plan for, develop, and maintain learning laboratories on school sites. It is through activities of this nature that youth develop important attitudes about man's relationship with his environment.

A well designed and developed school site serves the community in many ways. After-school and summer programs can be established to enable individuals, families, and youth groups to capitalize on available recreation and learning opportunities. The city recreation department frequently hires a naturalist to conduct informal and formal environmental education programs on school sites which possess learning laboratories. Opportunities of this nature should be available for youth throughout our communities.

School site development can be justified economically. As the quality and educational potential of a school site is improved, the surrounding property value is increased. Increased property value is reflected by an increase in the tax rate of neighboring lands;

therefore, every time a school millage issue is passed, the school will receive additional funds from increased property taxes of surrounding homes as a result of the school site development.

School sites can and should be used to enhance instructional programs and in this way can be justified economically. One of the most important criteria in school site selection should be the "educational potential" of the site. Learning laboratories on school sites can play a key role in helping both youth and adults to increase their interest, awareness, understanding, and respect for man's environment.

A PERSPECTIVE FOR SCHOOL SITE POLICY

School children today are being taught to discover things for themselves. Environmental and Outdoor Education Programs encourage children to reach out, to become involved both physically and mentally in a total educational environment. Those educational resources which encourage curiosity and imagination should be appreciated and enhanced.

As a result of this teaching, our students should be more deeply concerned than previous generations about the deterioration in the quality of our environment.

The school land, being community owned, offers an excellent opportunity for bringing people together to make decisions about their quality of life and their natural resources. It also offers an unexcelled opportunity for students to see democracy. School sites today are "where the action is".

By tradition, our school sites have been unappreciated, under-

developed and, consequently, under-used. Schools have often been built on flat treeless fields in the belief that such sites are easier and cheaper to develop. Trees that do exist are seen as something to cut and water is seen as something to drain off. Trees and ponds are regarded as liabilities and not as assets.

Although in recent years some effort has been made to purchase and develop exceptional school sites, our schools do not have any educational specifications for land. Consequently, the school site is often not regarded as being a potential learning situation.

Often in the past, school sites have been developed with maintenance as the foremost objective. Token play equipment has been bought at some expense, when creative play equipment could have been built by older youth and parents of the community. Too little use has been made of our beautiful native trees and shrubs.

The end result often is a school site which is sterile, unimaginative. It is cold, windy and dusty. Ecologically, it is a desert and an under-used natural and educational resource; aesthetically, is often ugly. Taken together, the school building and its site do not give a feeling that man is one with nature.

To change from minimum site usage to maximum site usage, there must be an accompanying change of attitude on the part of the school administration. Simply put, they must accept as a new policy that the school site does not need us, we need it.

We must put land to work for us. Raw land must be recognized as a potential resource to fulfill some basic human needs. Just as land meant freedom to the early pioneers, land and all of its accompanying natural features means a good education for a quality environment of

the future.

The Plus Values of "Green Islands"

Green grass, green trees, green vines, green shrubs--all create the feeling of coolness, freshness, and serenity. Indeed, this feeling is a true sensitivity because only a green leaf can cool and purify the air we all must breathe.

The land around any school can be an excellent place on which to create a Green Island since the school land belongs to everyone and, when developed wisely, can be used seven days a week, twelve months of the year. Only the present dreariness of most existing school sites, combined with the fact of man-made use restrictions, prevent Green Island school sites from existing in our neighborhoods even in the areas called pockets of poverty. That Green Islands of trees and grass happen also to be beautiful and can help children learn to live more harmoniously in a natural, healthful environment; that birds, insects, and small mammals automatically are attracted by tree-shelter and food-bearing shrubs which can enhance the daily school instructional program; that apartment renters pay "extra" and home owners buy premium-priced lots near school sites which are Green Islands which do provide family recreation space and equipment, all of which does increase school tax collections. All of these economically sound and educationally and socially desirable advantages are some of the plus values of Green Islands with strong and direct appeal to school officials who are responsible for acquiring, planning, developing and operating school sites. The demonstrations now under way in many Michigan schools do indicate that the techniques and practices necessary for full school site utilization are becoming

known.

The Admonition to "Stewardship"

If we, as responsible human beings and as delegated school officials, need a greater purpose and a more forceful direction in our future actions to develop, to manage, and to use more fully the land around our school buildings, then let us consider the import of the injunctions that have existed for centuries about our human responsibility as "STEWARDS" of the land. Far too often we have been heedless with our land resources, perhaps because the conviction that land is our greatest finite resource has failed to register in our busy minds. However, the grim and relentless realities of population explosions and the social unrest in high-density population slum areas are forcing us as educators to re-assess our school "land" resources as well as our more routine reassessments of our school "building" resources. Let us begin with the Acres of Diamonds which already exist in the public school sites already bought and paid for by our taxpayers. It appears evident that over the years, boards of education and school officials have exercised their concerns and energies of "stewardship" for school children and school buildings far better than they have exercised their "stewardship" of school-owned land. School buildings are being developed and used in many of our school communities to a high degree. In contrast to this increasing use of school buildings, school lands are still vastly under-used as publicly-owned resources. In most of our communities the real and total potential for public benefit which could be received from school sites (if they were better managed)

could raise the present level of utilization from 10 or 15 percent up to perhaps 80 or 90 percent. But, to accomplish this great public good, school boards and school officials will need to undertake far more enlightened programs and policies, leading to the fuller utilization of school site resources.

Five Purposes for Action on School Sites

When school officials and citizens are motivated by a concern for stewardship of land and when they do envision school sites as Green Islands, then more specific purposes for site planning, development, and use emerge. Some of these purposes for action are:

1. Broadly Based Community Uses: The school site, as well as the school building, ought to be so attractive and so purposefully planned for multiple use that all citizens of the neighborhood are drawn to use it the year around and to show their school site proudly to visitors. A school site that is developed for the wisest and best use should attract bird-watchers, picnickers, hikers, camera-bugs, rock-hounds, and pebble-pups. These people should have been so deeply involved in planning the development, use, and management of the school site that their sense of stewardship for that land which truly they own is stimulated or renewed.
2. Improvement of the Biosphere: The beauty and natural utility of school sites can be enhanced by planting a variety of species of trees, shrubs, and vines, and by protecting from the bull dozer those plant habitats which it is desirable to preserve. When food plants, cover plantings, and water

exist, then birds, small mammals, and other animal species are attracted to the environment. If community people are involved in planning what shall be improved, their attitudes and behavior undergo a positive change.

3. Improvement of the Microclimate: Many classrooms are too bright from sun and snow glare. Many play areas on a school site are too windy or too wet to use most days of the year. Often, fuel bills for heat or air-conditioning are higher than they have to be because tree and shrub plantings have not been placed on the school site to make rooms and play areas more comfortable the year around. Planting trees for windbreaks, for sound-absorbent screens, and for shade from excessive sun glare in classrooms can be far cheaper than is the purchase of drapes and blinds for school windows. Hence, moving half-grown trees, thirty feet high, into school site locations to protect children, teachers, and buildings from the extremes of heat, cold, wind, glare, and noise is economically feasible.

4. Enhancement of the Instructional Program: More often than not, school-age youngsters live in urban areas or are transported to school by bus and thus miss out on close observation of the fascinating day-by-day changes in their natural outdoor environment. School camping and field trips to natural areas appear to be under scrutiny in many states. Budgets and program timetables are insurmountable obstacles, especially for the boys and girls in the secondary schools. Thus, it would seem that if this present generation of sub-

teens and teenagers are to have realistic experiences that bring them into harmony with their biophysical environment, the school must better provide on the school site the means by which young people are able to develop their values and experiences with natural resources.

5. Increased School Tax-Base Created by Green Islands: As premium prices for homes and apartments are paid for housing units favored by proximity to Green Island school sites, abnormally increased school taxes are collected in small, but measurable, quantities for many years on hundreds of housing units. This "ripple effect" on property taxes can be measured on tax assessment rolls in an area extending several city blocks around "good" school sites, golf courses, parks, rivers, clean lakes, and great trees. The plus, or extra, tax collections frequently spread out from a center of a good school site like ripples in a pond through many city blocks. These individually small extra tax payments on hundreds of real estate parcels can, in total, over many years, more than return all the public tax investment which has been used to create Green Island school sites.

These five general purposes for improving school sites encompass numerous more specific planning concepts and principles.

GUIDELINES FOR SCHOOL SITE DEVELOPMENT AND SITE SELECTION

The following is an outline of planning procedures and considerations for the development of a school site. These same considerations

can be used as meaningful criteria for selecting a school site. Careful selection of the site can minimize development problems as well as provide the opportunity to maximize its use.

Community Relationships

Land Use - Ideally, school sites should be an integral part of a community. Open space contiguous to a school can function for many purposes, some of which can be utilized as a part of the teaching program and some which may function to improve the quality and beauty of the total environment.

The School-Park Plan, where shared facilities can affect a mutual gain for both the school and community, is the more traditional example of positive program use of adjacent open space. Measurable mutual gains are: reduced land costs, shared maintenance costs, and reduction of required land areas because of shared open space. The more critical gain for the school is the possibility for expansion--sometimes even beyond foreseeable predictions. Joint, long range, school-park planning considerations should allow for this flexibility without pre-empting basic park area demands.

Open Space Reserves set aside for ecological purposes are generally and traditionally considered as waste and unusable land. Progressive land planners are now searching out and documenting, scientifically, a rationale to preserve marshes, flood plains, aquifer recharge areas, steep lands with grades in excess of 20% slope, prime agricultural land forest and woodlands. Each land type contributes to the natural processes which maintain an ecological balance and therefore a quality environment. For example, marshes

provide flood reservoirs, water storage areas, wildlife habitats and fish spawning ground for nearby open waters.

Each of these land types can be utilized educationally to illustrate its own unique purpose in maintaining the natural processes, vital to a quality and habitable environment. Therefore, the school should place a high priority in selecting land near or contiguous to permanent open areas having high ecological value.

Open Space Zone set aside as greenbelts and buffer zones. Areas of this nature may provide aesthetic and functional values for the school site. Aesthetically, the nature and dimension of the area may provide effective vistas and approaches to the school and its site as well as soften the massiveness of the larger school buildings.

Functionally, the greenbelt may provide the area for continuous pedestrian walkways for a safe and pleasant access to the school site. The size and nature of the greenbelt may provide effective buffering from incompatible land uses and excessive traffic noises. The greenbelt open space, as in the case of all substantial adjacent open space, can have the ability to absorb air pollutants and channel desirable air movements through the school site.

Community traffic patterns can and should have considerable influence on selecting and developing a school site. Although every situation is unique, requiring a detailed study of both regional and local traffic patterns, the following basic principles should be carefully considered:

1. The school site should link to a primary artery in order to avoid the necessity of motorists having to weave through the secondary street system of the local residential neighborhoods.

2. The primary pedestrian access should not be across busy primary streets.
3. The community should have direct access to the school building and outdoor facilities, and to the parking lots which serve them.
4. Primary indoor and outdoor school uses should avoid direct orientation to primary traffic arteries.
5. A concerted design effort must be made to provide physical and visual buffers between primary traffic arteries and adjacent school sites. Also, the community traffic planners and the school site planner should work in concert in the early stages of plan development to achieve a scheme that will satisfy both the community and school interests.

Historical aspects of the environment should be a primary design input. With the recent concern for environmental quality has come a valid rationale for preserving the essence of the older portions of our community. School development must carefully recognize the character of these zones. Professionals must have experience and sensitivity to the unique problem of school site development in these areas. The entire school site program may have a totally different and innovative objective that is far more compatible with the restraints and advantages of the older neighborhoods.

Site Characteristics

Before detailed building plans are started, an in-depth study of the site should be made in order to discover existing site characteristics which can, to various degrees, influence those plans. For example, significant topography can appreciably influence the number of stories in a building as well as its configuration. It can help determine the location of such major site elements as parking and roads. Such consideration may avoid costly and

devastating grading operations. The primary shade zone of a long group of trees may be harnessed to reduce air conditioning costs. Natural swales and streams may be effectively used to maintain natural site drainage. Careful consideration of the microclimate may extend the period of outdoor site utilization. Also, the microclimate coupled with soils can provide valuable criteria in the selection of plant material which will be indigenous and hearty in its specific location.

Existing architectural character of the community adjacent to the site can, if distinctive enough, influence the choice of building materials for the building, its scale and even its location on a particular site. Several outstanding designs of schools in this country have borrowed their basic motif from the surrounding community.

Among the more significant characteristics which should be examined, both individually and collectively are:

1. Topography
2. Soil character and type
3. Vegetation, type and quality
4. Birds and small mammals
5. Ecological significance
6. Geological characteristics which are outstanding and useful
7. Type, quality and historical significance of structures
8. Natural vehicular patterns, ingress, egress
9. Natural pedestrian patterns
10. Orientation
11. Climate
12. Unique environmental qualities

Although the norms for acreage which will adequately serve the use requirements for the Ann Arbor Schools are reasonably set at Elementary - 10 acres; Junior High - 25 acres and Senior High - 50 acres, final acreage needs will vary with the nature of the site. Heavily wooded and steeply graded sites will require considerably more area if we are to preserve the natural structure of our environment. On the other hand, sites selected within highly urbanized areas where land is scarce and costs are extremely high, may not meet the standard acreage requirements. Restricted land areas need not restrain innovative and quality school design.

Program Development

Either shortly after or concurrent with the site analysis, careful attention should be focused on the development of a site program which recognizes building program relationships and the opportunities offered by the site itself. It is in this stage of development that the building architect and the site planner must work in concert. The building cannot and should not be developed independently of its environment. Nor can the site respond in a sensitive way to the building without the landscape architect's knowing its functional and educational needs.

Following is a brief outline suggesting program development recommendations which will vary with each site situation and will undoubtedly be supplemented with unique program development demands; however, a program should fit the site and not be forced upon the site solely because of its uniqueness.

1. Educational specifications for site usage
    a. Outdoor Classrooms - outdoor spaces should provide suitable extensions of the interior classrooms. In these spaces, students may manipulate and experiment with their own environment and

teachers may develop new programs and teaching methods. Specific uses might be related to:

(1) Earth Sciences

(2) Physical Sciences

(3) Botanical Sciences

(4) Conservation

(5) Natural Resources

Each of the above should be interrelated to illustrate its contribution to the natural processes of the school's environment.

Site requirements for appropriate outdoor laboratories to accomplish the above educational goals include:

(1) Natural features such as:

(a) Meadows

(b) Woodlands

(c) Ravines

(d) Streams

(e) Ponds

(f) Marshes and Bogs

(2) Site potential to construct:

(a) Geological sample rock walls

(b) Soil profiles

(c) Nature trails

(d) Botanical plantings

b. Physical Education: As mentioned under community considerations, where feasible, the park should be located contiguous to the school site where it can be used by both the school and the

community. The outdoor physical education area should be located where it is convenient to both. It is especially important that the community have access to the park in the summer and on weekends throughout the entire year without intruding on those areas developed strictly for school use (i.e., outdoor classrooms, school garden or kindergarten play areas).

While types and sizes of outdoor physical education facilities will vary for specific schools and sites, the primary siting considerations are:

(1) Proper orientation to the sun

(2) Protection from prevailing winds

(3) Good surface drainage

(4) Close proximity to washroom facilities

(5) Separation from dangerous traffic routes

(6) Direct pedestrian access from related indoor facilities

(7) Buffering nuisance factors affecting adjacent properties

c. Play space: Play is part of education in the early years of childhood. Therefore, play space must foster the growth of curiosity, initiative and creativity. It should encourage children to feel that the school environment belongs to them--a varied place where many kinds of activity can occur, where the student can arrange things according to his own program. Wherever possible, emphasis must be placed on utilizing natural land features for play space in order to preserve the natural structure of the site.

Play space is utilized before school, during recess, after school, on weekends and during vacation time, when children are free to play on their own with no attempt by the school to "organize."

Basically, play space is designed to provide two fundamental objectives:

(1) Structured play areas for climbing, sliding, swinging, etc., requiring equipment in addition to space;

(2) Unstructured play areas for running, playing catch and tag and observing others at play. The more progressive unstructured play areas provide objects and materials which can be used by children to create their own environment.

Not enough emphasis has been placed on the utilization within the school site of the natural environment to inspire creative play. The variety of play activities found on the thickly wooded hillside are too numerous to mention. New experiences are discovered every day with each generation of students.

It is therefore appropriate to avoid the contrived structured play syndrome when more imaginative and creative play experiences can be found on a site enriched with natural features.

2. Functional Specification for Site Usage

a. Site Area

To arrive at area requirements the following factors must be considered:

(1) The educational facilities to be provided in the buildings and on the grounds.

(2) Anticipated enrollment and ultimate maximum size of the school.

(3) Anticipated future expansion of the building and outdoor facilities.

(4) Building design and site planning considerations.

(5) Site location in relationship to community facilities, i.e., school park plan.

(6) Site characteristics - with emphasis on preserving natural features.

b. Requirements for functional relationships and development (see drawings that follow)

(1) Pedestrian and vehicular circulation - vehicular circulation should be clear and simple and separate from pedestrian walkways. Positive controls should be considered where conflicts do occur. Vehicular circulation should not penetrate and cross outdoor use areas.

(2) Access

(a) Ingress and egress should be compatible with the community traffic system and effectively relate to drop-off zones and parking lots.

(b) Drop-off zones should be separate from primary walkways and be adequate to serve peak arrival and pick-up areas. The drop-off zones may be distributed and relate to several building entries where appropriate. Sometimes this functional demand, where

convenience is emphasized, completely dominates the images of the school's primary entrances and blocks existing site features such as topography and trees.

(3) Parking:

(a) Should be convenient to drop-off zones;

(b) Should be integrally designed with service areas;

(c) Should be adequately screened from prime visual zones;

(d) Should be adequate in size and conveniently located so that parking will not overflow into neighboring residential streets.

(4) Service Areas:

(a) Should consider type and size of service vehicles;

(b) Should provide storage for service vehicles;

(c) Should provide refuse storage and pick-up.

(5) Community access, parking, usage and possible school/park relationship.

(6) Relationship of building use areas to site use areas.

(7) Grading and drainage:

(a) Should honor existing patterns. Major grading operations should be avoided by adapting the building and site uses to the structure of the site. The architect must sense this very important principle, stock plans can rarely be used without major adjustments.

(b) All topsoil should be saved and utilized in proposed planting areas.

(8) Utilities and public services: These are especially important considerations when selecting a site. Utilities

such as water, storm and sanitary lines, gas, electricity and telephone as well as police and fire protection systems are essential to the operation of a school and must be provided.

(a) Adequate access for fire fighting equipment is essential.

(b) Utility lines must be planned to be as direct as possible without cutting up the site.

(c) Storm lines should be carefully designed to fit the existing topography, which in turn determines layout of surface grades that minimize grading operations.

(d) All underground utility lines should be designed to consider future expansion and should be recorded accurately to avoid serious accidents and expensive searching operations during underground excavation operations.

(9) Buffers to provide screening from surrounding land use areas.

(10) Enclosures such as walls and fences for security and control.

(11) Outdoor lighting which is both functional and aesthetic.

3. Aesthetic Specifications of Site Usage

The inclusion of aesthetics as a primary design consideration does not necessarily negate functional program objectives. In most situations the restraints of function will inspire an imaginative aesthetic expression in the hands of a skilled designer.

We cannot possibly cover the rationale for aesthetic design considerations except to provide a basic check list of design factors. Again we emphasize that these considerations should be studied together by both the architect and the site planner.

a. The Relationship of Building to the Site:
   (1) Scale of the building and site
   (2) Materials of the building and site
   (3) Floor elevation in relation to the existing grades
   (4) Entrance image
   (5) Relationship of building to site characteristics
   (6) Relationship to site uses
b. Planting Design - should be bold and simple and relatively maintenance free.
c. Open Space Design - should structure the entire site program and amplify the beauty of the building.
d. Lighting
e. Signing - should be simple and informative, avoiding unnecessary clutter.
f. Site construction elements - such as benches, walls, play apparatus, etc.
g. Design of specific use zones - such as athletic fields, outdoor labs and play areas.

Concept Development

After thorough analysis of the site, development of program specifications, and delineation of functional specifications for the site parallel with the building planning procedure, the site is ready for design development in accordance with the following phases:

1. Schematic - overall broad framework concept including several alternative schemes:
   a. The rationale for the schematic design and alternatives should be conveyed to the School Board in a working session to encourage criticism and to include valid ideas of Board members;
   b. Preliminary cost budgets with adequate contingencies should be included in this early planning submission;
   c. Authorization should be given after schematics to proceed with the most feasible scheme.
2. Final Preliminary Plan - This plan should:
   a. Clearly delineate all elements of the program;
   b. Include a more definitive cost estimate;
   c. Include outline specifications for all elements included within the scope of site development.
3. Final Development Plan - complete contract documents for site work, ready for competitive bidding either on a separate basis or included within the building construction contract. Should include:
   a. A final cost estimate;
   b. Competent supervision;
   c. A follow-up on all guarantees.

PRINCIPLES, POLICIES, AND PRACTICES FOR SCHOOL SITE DEVELOPMENT

Principles are statements of what ought to be. They are broad, fundamental, comprehensive. They have much in common with goals and objectives - fundamentals

to be achieved without any omissions. They may deal with, and probably should deal with, both the process of how things are to be accomplished, and the content of what shall be accomplished.

Comprehensive, Cooperative, Interagency Planning

These first three principles need to be applied even before a new school site is purchased. Probably close to 90 percent of the school sites to be used in this nation over the next decade are already acquired and in use. Quite possibly, 89 of these 90 percent are still in need of comprehensive, cooperative, and interagency planning.

Even those plans already "completed" ought never be filed away as "done," nor followed blindly over years without periodic re-examination and revision. Every homeowner knows that the development of a landscaping plan for a city lot or for a place in the country is a matter of planning, moving forward, replanning, moving some more, and so on endlessly. A woodlot, a meadow, a rose bush is no static thing. Even a chunk of blacktop will bend, crack, crumble, and erode with time. More importantly, what goes on at a site will change from time to time, calling for new spaces, new vistas, new site facilities.

Every school board should set policy, and should create the administrative structures to assure itself of comprehensive, cooperative, interagency planning for each school site. Qualified administrative officers should be responsible for the teamwork necessary to produce the plans, and for preparing the recommendations to translate plans into reality. As requisitions come in for modifications at a site already developed, he should re-institute the planning process in truncated form to the extent necessary for a good decision. He should probably also be responsible for seeing that all sites are "audited" every five or ten years; for site problems, unlike some other problems, can

often drift along unattended by an administration whose style is to "put fires out." As a valuable monitoring and public relations strategy, the entire planning and auditing process should probably be supported intellectually by an advisory committee of specialists--perhaps the county forester, the local agricultural extension agent, the United States Soil Conservation Officer, local landscape architects or nurserymen, representatives of community conservation groups such as the Audubon Club or the Sierra Club, certainly community park and forest preserve officials. The same advisory committee might serve school district, community park department, and other agencies with site development needs.

Acquisition of Size beyond Immediate Expectations

This principle is the back-up system to protect against failures of the planning process. In its recommendations for school site size, the Council of Educational Facility Planners International has followed this principle for years. During the 1950's, the Guide for School Plant Planning began recommending ten acres plus one acre for each 100 pupils for elementary schools. Two of the members tried to build a justification for so large a site. Assuming a two-section school of two class groups for each grade, kindergarten through six, of some 350 pupils, Cooper and Boicourt attempted to justify the fourteen acres of land recommended. They were unable to justify much more than four acres even though they allowed for a rambling one-story building, outdoor classrooms, boundary screening, ample front and side lawns, splendid driveways and parking, separate playground equipment areas for the younger and the older children, playing fields, project spaces, and the like. Dr. Gerald Boicourt, now Professor of Education at Wayne State University, built a "planning board," a felt-covered board with movable cross wires which permitted any rectangular acreage to be designated. Cutting felt

overlays to scale for all the possible playing fields, playground equipment pieces, classrooms, outdoor classrooms, trees, fence lines, and the rest, they built up the site requirements of a number of schools, but were never able to fill up the recommended space unless they allowed for such space-hungry activities as biology gardens, vocational agriculture fields, forestry plots, nature preserves, or community canneries and machinery repair shops.

All of these latter, space-hungry activities have been developed on school sites. The generous recommendations of the Council are wise precisely because nobody can foresee the demands which may be placed on a school site over its lifetime of usefulness. A number of space demands are constantly poised on the horizon for education--day care centers, ecology centers, community school elaborations, solar energy collectors, rainwater recycling systems, to give some examples.

Furthermore, in many residential communities where an acre of land covered with homes may regularly supply a dozen school-age children, large school sites may pay for themselves over and over again by saving the school system the cost of "children who do not have to be educated!" For school boards caught between a potential need for extra site space, and extra enrollment pressure if smaller space is permitted, a policy of large size for school sites has gained widespread support in hundreds of communities.

Where smaller sites are already trapped into existing built-up communities, or in metropolitan areas where land for new sites is unavailable at any price, site development may become a matter of arranging flower pots and of field trips for children to see green grass; but these are not conditions of interest to designers of optimum school facilities. Planners ought not turn their backs on small school sites, for much that is delightful and functional can be done with them; but at least a policy of large site

acquisition in circumstances of convenience should be followed.

Acquisition of Topographical Variety and Interest

A policy which favors high, flat, bare ground as the ideal school site seems utterly business-like and hardheaded. An opposite approach causes some misgivings, yet there seems no escaping the stimulus, the beauty, and the educational force of a hillside, a riverbank, a waterway, a pond, even the edge of a swamp. A policy which favors the deliberate search for such areas can be justified easily on educational grounds; yet builders of golf courses, of fancy homes, and increasingly, of even industrial plants go to great lengths to preserve or create reflecting pools, settling ponds, rock escarpments, and the like, solely for the purpose of eye-appeal.

At a small college in the Appalachian Mountains of southeast Kentucky, the Alice Lloyd College, whose post office has the delightful name Pippa Passes, environmental quality assumes perspective. The pass is filled by a roaring mountain stream and a two-lane road which struggles for a toe-hold beside the stream. For a couple of miles along both sides of the stream and road, college buildings hide in the trees on the 45 degree slopes of the mountain sides which run toward the sky. Students and faculty cross a foot-bridge to reach the central union building from the road; they climb steps to reach classrooms on both sides of the stream and road; more steps to reach the dormitories; still more steps to reach faculty homes. Alice Lloyd might be the wrong place for anyone in a wheelchair, although curiously Mrs. Alice Lloyd who founded and directed the college and lived on its campus was herself handicapped and confined to a wheelchair. The college certainly demonstrates the feasibility and the tremendous stimulus and charm of an interesting setting. The view looking downward from the science building window, into the top of the dogwood tree where the Brown Thrasher is at work, may not fix a chemical

formula more firmly in mind, but it certainly adds immeasurably for some people who appreciate the quality of life.

One cannot expect to have the Appalachian Mountains as a backdrop for every public elementary and secondary school in America. However, one can hope that each public school will be interesting to the eye and the heart, as well as to the mind.

Coordination of Site and Building Development

The concern with site development should not exclude the symbiotic relationship which exists between the buildings and the grounds of any site. The community school movement has done much to popularize this relationship, and to elaborate helpful arrangements of buildings to grounds. The emphasis of the community school movement in recent years has been strongest on behalf of adult services and recreational services, especially for weekends and during the summer when regular classes are inactive. Citizens keep waiting for planners, and planners probably keep waiting for teachers and school administrators, to pay more attention to the coordination of building and site development on behalf of the biology department with its need of outdoor growing space; of the music department with its constant movement of the marching band and of performance groups in and out of buildings; and of other curricular areas like auto shops, libraries, and home economics which could use special outdoor areas.

Ideally, building and site plans will be created as a single, unified thing; but many a site plan must be built around the building as a fixed and given object. The responsibility rests then on the site planners, to relate their work to the curriculum of the school, in constant cooperation with the instructional staff of the school.

Development to Maximize Safety, Convenience, and Durability

These three principles are, of course, important. Indeed, their importance is so evident, and so compelling, that they probably are more fully honored around schools than are most of the other principles under discussion. Safety, convenience, and durability should permeate every detail of site development. Consideration of safety, convenience, and durability should be directed to every tree and bush on the school site, to every square foot of terrain, to every space, every post, every wall, every line, every elevation. At times we are intimidated by these "survival" factors into maintaining dull, sterile conditions, but there remains no question about their importance in all aspects of development and maintenance.

Development to Enhance Climate and Terrain

The development of school sites appropriate to climate and other ecological factors might be described either as adaptation to the physical condition of the site; or as climate and ecological control. But adaptation is too mild a word; and control of the climate and of the ecology, even over a very limited area, is undoubtedly too ambitious a goal; thus the word enhancement is used as the best word to describe what we can and should accomplish.

The development of school sites appropriate to climate draws on a considerable body of scientific knowledge, none of it particularly new, but on the other hand, almost none of it widely applied as yet on behalf of that "second home," the school, where all of us spend so much of our lives. When our knowledge about macro- and micro-climates; about wind factors, temperature and humidity, water run-off, and what plants will grow where, is all put together, we could do much better than we commonly do to develop school sites of quality. Mr. Jesse Williams has been responsible for school facility

development at Ramey Air Force Base in Puerto Rico. His school sites are spectacular, sitting on the edge of the ocean, on gently rolling high ground which forms a cliff along the ocean edge. Wind has been the problem on this site, welcome within limits as it counteracts the sometimes high temperatures of midday, but sometimes also tiresome because of its persistence, and sometimes troublesome because of its force.

On this site, the climate factor practically forced school authorities into attempts at climate enhancement. Had the school's buildings been placed improperly, wind veolcities could actually have been increased between and around buildings. Fortunately, reductions of wind velocity in working and playground areas, better ventilation through classrooms, and reduced temperatures during the heat of the day in specific areas were all possible by proper placement of buildings in relation to each other, by proper location of buildings in relation to the site, and by strategic location of fences, walls, shrubs, and trees.

The specific adjustments useful at the Ramey Air Force Base School may be applicable to other places either in windy, tropical climates or in cold temperature climates, but every location will differ somewhat one from the other, in land slope, in vegetation, and in other details. Every site is, of course, a unique problem. Probably the only policy which can be recommended in general for all situations is that a report, a master plan, a long-range plan shall be prepared by competent specialists, identifying problems and prospects for climate enhancement and proposing courses of action with appropriate justifications and developmental cost estimates. As part of a total site plan, this report on climate enhancement would serve to open up the topic for careful discussion, and ultimately for action decisions.

In the midwest region of the United States, school site plans should at the very least take account of sun glare through classroom windows; of snow glare; of snow drifting, of wind; and of both excessively high and excessively low temperatures. In any climate a low profile school building is particularly amenable to such protections, as are all outdoor ground-level playground areas.

The current energy crisis has focused some attention on the blessings conferred by trees for temperature moderation. Research on classroom lighting which was especially active in the 1940's and 1950's found that all the fancy inventions for light control at windows, ranging from directional glass blocks through inside and outside louvers to no windows at all, were no improvement over a row of trees filtering sunlight and sky brightness along a row of classroom windows. The recent development of trees hybridized to yield very rapid growth to any of several silhouette shapes makes the use of trees for climate enhancement more and more practical. Hybrid poplars, about a foot long, grow to 3 or 4 feet in height during the first summer. By the end of the second summer, they are 10 feet tall; and during the six or seven years while one group of children are progressing through an elementary school, these trees will mature into forty-five to sixty foot trees. The beginnings of a pleasant light baffle can be achieved with the hybrid poplars in three to five years. Hybrid evergreen trees would have distinct advantages over deciduous trees for most aspects of climate enhancement on school sites. A local state forester or county extension agent can usually offer advice concerning trees and plantings where needed and can often serve as a source of supply for nursery stock.

Development to Delight and Protect Client Groups and Adjacent Property Owners

These two principles cover a wide range of practices, but have in common the need to achieve as much beauty, and as much security, as possible from

school site development. On behalf of beauty at school sites, we should visit both government and private schools in England. Maybe beauty is not terribly profitable in terms of dollars returned on dollars expended, but it is delightful to see the manicured lawns, and the carefully tended flower plots, even of Central London city schools.

At one secondary London school most of the paper cups and napkins were dropped into waste containers, and the few scraps which escaped were picked up within minutes after classes resumed, by two custodians. Perhaps this careful behavior by students, faculty, and custodians flows from the caring behavior of administrative policies toward school sites. Every London school seems to have one or more competent gardeners, with ample time and tools to build the lawns, trim about the trees, transplant the flower plants, and remove the weeds.

Beauty, of course, is more than mowing lawns and planting flowers. Beauty is a design achievement, in which landscape architects create a psychological impact. It is more than some green grass, some trees that will survive city smoke and gases, some bushes to hide the building's foundation. It is an elusive, subtle creation, seldom totally effective for all observers, yet unlikely to be effective with anybody unless carefully cultivated. Even if school board policy requires that beauty be one of the points of evaluation for site plans, we shall often be disappointed; yet we all know that beautiful grounds are more likely if care is taken with planning and development. Research suggests that beauty be among the principles consciously written into school site policy, so that the odds will be a little better than accidental for an occasional vista that inspires, an occasional scene to make students and teachers curious, an occasional

view which makes those who work in that place glad they are there.

The protection of client groups, and of adjacent property owners and residents, has developed in recent years from a largely boundary issue to also include now the problem of mugging and rape. The older boundary issue was concerned with making school sites as attractive to the neighbors as are golf courses, parks, and forest preserves. Neighbors dread the confrontations with children chasing after errant balls, with children cutting through the block to and from school, with kids grabbing a quick cigarette between classes. The bleakness of school sites has also been a negative factor--the dusty gravel playgrounds, the barren chain link fences. Property values next to schools are traditionally lower than for similar property away from a school; whereas the golf courses and parks are often surrounded by the fanciest houses in town.

We have known how to solve the boundary problem of schools for decades. At the University of Chicago, professors of educational administration regularly take administration students to the Glencoe School District where a couple of landscape architects, McFadean and Eberle had directed the construction of a ridge of soil some six feet high and 15 feet wide along three sides of one of the school grounds. On this ridge, completely surrounding the playgrounds, were planted three rows of shrubs, all dense of growth, and all very stickery. The center row of shrubs is tall--perhaps 12 to 18 feet. The rows on either side were lower, creating a green belt from ground to sky during spring, summer, and fall. Even in winter, the deciduous shrubs were a dense thicket. Now, we might want a center row of evergreens, and perhaps even a chain link fence hidden down the middle of the

ridge, but as it stood, the Glencoe boundary investment was thought to pay for itself annually in larger tax evaluations from houses across the street from the school.

The second protection issue, of designing school sites safe from threats of mugging and rape, threatens in some communities to become the only school site issue of concern. The thought of a clump of bushes or a hedge is almost guaranteed to produce emotional trauma in some neighborhoods. Under these circumstances, anything more than a parking lot becomes hazardous, and maybe even the parking lot should become an indoor garage under lock and key. Several years ago, Professors Cooper and Wilson visited a school in western Michigan where teachers refused to attend evening parent-teacher meetings. They would not walk after dark from their cars in a treeless, shrubless parking lot surrounded by chain link fence, into the school building.

We need substantial research and invention with this problem. We are all aware of the instant telephone service to security headquarters around public buildings; of the admonition of travel in some neighborhoods in groups, never alone; of increased expenditures for lighting. Still, the statistics on crime grow more frightful every year. Has anybody thought about returning to the style of medieval castles, with towering walls and a moat? In spite of the Supreme Court, bussing may yet come as a way of assembling students where survival is not the issue.

More seriously, it seems clear that protection of clients within the school site must be achieved in ways which still leave us with beauty and utility. There must be some way to have school grounds

which are not menacing. We may have to go the Spanish patio route, or use the model of the American frontier fort, building schoolrooms around the outside of the school grounds with outdoor space in the middle.

Development to Maximize Recreational Opportunities

Recreational development of school sites, a sort of first call on the usefulness of the site, has generally stagnated from too little imagination. We see evidences of concern for what it is which will entertain a child. We in education should probably be chagrined that the most interesting places for little children these days are not the school grounds, but the shopping center malls, sometimes even the motel and hotel lobbies. The new shopping mall at Ann Arbor, Michigan supported by Penney's, Sears, Hudson's, and dozens of lesser shops, is a major attraction to children and to their parents, grandparents, aunts and uncles. The layout itself is a delight, with stairs to climb, high and low places to explore, water to dabble in, plants to marvel at. And when the Easter Bunny comes on a Saturday; or the barnyard zoo arrives for the weekend, the crowds of children are unbelievable! Even a little feature like the ducks at a downtown Memphis hotel makes that otherwise rather drab hotel the goal of many a family with small children--the half-dozen ducks live on the hotel roof, up about 10 stories; they ride the elevator down to the lobby daily, shepherded by one of the porters, then walk across a strip of carpet from the elevator to the fountain in the center of the lobby; and there they provide happy watching for many lobby visitors from about 10:00 A.M. to 4:00 P.M. daily as they splash in the fountain and dry their feathers on the marble edges of the fountain.

Recreational development at a school may be achieved in a multitude of ways. Differentiated areas for the youngest children apart from the older children will be helpful. A wide variety of equipment, with particular emphasis on climbing and stretching rather than swinging and whirling, will be welcome. Varied texture in the playground surfaces will also extend the recreational advantages, ranging from tan bark through sand, black top, grass, artificial turf, smooth cement for roller-skating, and perhaps not quite so smooth cement for hop scotch and handball.

In developing school sites, the value of unconventional recreational facilities ought not to be forgotten. Early childhood research shows the delight which young children take in riding a great cement turtle or polar bear, a wooden airplane, or a free-form figure of plastic. The release of imagination afforded by a partially dismantled automobile, an old fire truck, a freight train caboose, a locomotive engine, or a playhouse deserves cultivation.

Even the standard game areas are usually done with too little imagination, and with too little attention to the numbers of children needing play space. Fashions come and go to some extent with games, depending on the children's enthusiasms, and on their parents' and teachers' inclinations, but if schools and parks offered a wider range of good game areas then certainly a wider range of individual children would be served. Merely to name the range of out-of-door possibilities for an elementary school or for a secondary school will underline the underdeveloped state of most school sites--basketball, baseball, versions of football and field hockey, track, bicycling, handball, tennis, golf, badminton, volleyball. In some climates,

outdoor ice-skating and ice hockey will be in demand, and an occasional school site may even be able to provide safer than usual toboganning, a beginner's ski slope, canoeing, or horsemanship. For relatively small expenditures per person per year, plus considerable amounts of thoughtfulness and imagination, school sites can be developed for much better service than is usual on behalf of a higher quality of life, recreationally. We and our children can all live without community sites that are recreationally delightful and stimulating, but hopefully state and local policies of school boards, parks boards, and perhaps other agency boards as well, will enrich humanity through this relatively simple avenue of fully-developed outdoor community recreational facilities at that most common of public locations, the neighborhood school.

There seems to be some confusion about the principle that a school playground has recreational value. Perhaps the national passion for athletics has made school playgrounds into places of teaching and of competition, to the exclusion of recreation. A state-wide Indiana plan for recreational development, published recently, totally ignores school sites as recreation areas even after discussing church and other social agency playgrounds. As other states complete their plans for statewide recreational development, will the schools be seen as incapable of contributing? Is the recreational value of school grounds limited to school hours, and to the formal classes and games of physical education and competitive athletics? The answer to these questions may have to be worked out community by community, and even site by site, relying on the principle of interagency planning to establish the recreational role of schools

in relation to parks and other recreational agencies.

Development to Maximize Environmental Education Impact

Educators have not a shred of research saying children learn more from well-developed school grounds than from no grounds, or than from scraggly, neglected grounds; yet the idea seems so logical! Surely children, or at least some children, will come to know more about the trees and the birds if the trees carry labels which name and explain, and if birds are attracted to the school to be seen. Surely the values essential to conservation of natural resources will grow stronger, if the island in the school pond really attracts a pair of mallard ducks to nest. Surely science, art, mathematics, English, agriculture, history, can all benefit from the stimulus of lessons learned in this easily reached, easily controlled setting.

All of the educational research behind the activity movement in education, the "open" classroom, does support the concept that education take advantage of every resource available. Even hallways between classrooms can become valuable for education purposes. We are urged to take children on field trips, to "use the community as a laboratory." Our school grounds offer comparable advantages.

Philosophically, too, the school site is an educational asset. Humanism teaches that no two learners are identical, that not all children will learn from books, that some children will benefit more from observation, from work projects, and experimentation, to supplement the few hundred square feet of space avilable for these activities inside buildings.

The wedding between site and curriculum should undoubtedly be created out of the initiative of the curriculum people. They are

the ones who know which lessons they want to teach, or what children might like to learn. But the curriculum people will need someone on the other end of the line, who knows which birds can be attracted, or how to set up a working bee hive, or where to dig for the stones that outline the old livery stable which once sat on the front corner of the school site. If school board members intend for the educational advantages of school sites to be captured, they will probably need to vote funds for a specialist in school site education, just as they now provide for audio-visual educators to supply know-how about another kind of complicated educational tool. The school site educator should be at work at every stage of site development--when the site is selected, during the time of comprehensive planning, and while the contractors and the nurserymen are on the property. Later, the school site educator will be working with teachers and school administrators, and with the pupils.

Teachers probably bear the major responsibility for translating learning opportunities into learning experiences for children. No matter how many outdoor classrooms may be designed, unless teachers arrange for their use the outdoor space will sit neglected and forlorn. Even the indoor greenhouse, or solarium, suffers a similar neglect in many a school. The teacher's side of this neglect needs to be examined if we are to move to higher levels of practice. Either openly or silently, teachers are asking, "If I put a rabbit in a cage outside our classroom window, who will protect it after classes are dismissed? Who will feed the rabbit over the weekend? What will I do with it next summer? Will the children help keep it clean? Who will pay for the feed, and the cage, and the rabbit? After my one

rabbit has her litter, what do I do with ten little rabbits?"

If school district officers expect teachers to use the school site educationally, district policy will need to provide a little more money to capture the full potential of the money already spent for teacher salaries, and for the site itself. The school site educator should be able to provide stimulus, but the school may also need extra fencing, animal and plant custodians for weekend and summer care, compost pits near the school gardens to handle the manure, and a "site curriculum center" for supplies of feed, wire, wood, shovels, wheelbarrow, and all the other parphernalia of active outdoor learning. There is no need to shrink from this extra cost, for it is clear this nation will afford whatever it deems important educationally.

In all the recent national discussion about cross-district bussing, neither proponents nor opponents cared one bit about the massive potential costs of that program. As a matter of fact, now that cross-district bussing has been dealt a death-blow, the ideal time may have arrived for a real leap forward in the facilities.

The steady aching pain which led to suits calling for cross-district bussing is felt primarily in the inner city. There, parents and children know that their school buildings, their school sites, and probably their school programs as well, are sub-standard in comparison with suburban facilities and programs. Now those who say that they favor equality for inner city people have a chance to prove they will support better inner city schools within the city itself. One suggestion, worthy of a try, is to design several experimental inner city elementary schools as miniature nature study, home arts, food production and processing centers. Little children respond with special

interest to such realities as dogs, cats, chickens, sheep, angleworms, apple trees, sunflowers, and to the processes these products invite--the making of cloth from wool, the preparation of sunflower seeds for eating. Suppose, then, we clear 20 acres of obsolescent inner city land. Build classrooms and other school rooms around the outside of this plot at one end of the site. Build machine sheds and barns and poultry houses around the edge of the plot at the other end. Build several family homes into the boundaries for the resident farm teacher, the resident nature study teacher, the resident home-arts teacher and perhaps some of the regular classroom teachers. Schedule each of these resident staff members to teach, to manage a dozen on-site enterprises throughout the year, and to provide 24-hour guard duty as well. Completely surround the plot with buildings and walls, so that the school becomes a protected, unique enclave for adventures in learning.

Think of the excitement for teachers and pupils; think of the weekly or daily bulletins the children would publish on how the baby goats climbed into the fifth grade window from the top of the pick-up-truck; and think of jars of homemade apple butter from the school's trees. Think of the attention the city newspapers would give this wild adventure. Is it possible that parents and children, with access to this school, might think less about flight to the suburbs, and more about such projects as helping their school build a fence between the apple trees and the roller skating court?

Perhaps, as a concluding thought drawn from this suggestion for a "basic learning center," it would be well to stress the importance of liaison between creative school site developers and frontier

educational curriculum thinkers. After all, school sites exist solely to serve the people who will use them. We must remember in school site development to cultivate our communication lines with educators. Wherever the frontiers are in education, there also, it seems, we shall find our frontiers in school site development.

THE EDUCATIONAL SITE PLANNING PROCESS

Volume II Procedures For Site Planning

The educational planning process of school site development should be divided into a series of logical, sequential phases. Total initial site planning reflects the comprehensiveness of the following three phases:

I. PHASE ONE - Informal exploratory discussions involving the superintendent of schools and members of the board of education. The potential of the program for educational and community use, and assessment of the feasibility to the area should be discussed. Further exploration might involve planning consultants, representatives from other governmental units and interest groups.

II. PHASE TWO - Establishment of the Planning Committee by the Board of Education. Formal action by other legal bodies (city, township, county to be represented in the Planning Committee.)

III. PHASE THREE - The work of the planning committee is subdivided in order to involve those persons most intimately concerned: teachers, students, lay people, representatives of units and agencies involved. At the same time, this distributes the work load broadly and generates interest in the program. There are several tasks to be performed, parcelled out according to the abilities and composition of the sub-committees. A sub-committee might be established for each task, allowing for cross-representation.

Consideration should also be given to the need for collaboration among groups. This might be coordinated by the planning committee or its chairperson.

IV. GUIDELINES FOR THE OPERATION OF THE EDUCATIONAL PLANNING COMMITTEE 'PART DEMOCRACY'

A. DEVELOP A MASTER PLAN FOR MAKING THE STUDY.

Establish a time schedule.

Establish criteria for the program to be developed explicitly for subsequent evaluation.

The site, buildings, equipment and service facilities should promote the operation and administration of the educational program.

The site should provide for outside teaching areas, for informal social activities, and for community recreational programs.

Wherever possible, the natural environment should be maintained or enhanced to better overall advantage.

Describe the processes and procedures to use.

Determine the tasks to be done.

Make provisions for appraisal by external evaluators of the process as well as the status.

B. ESTABLISH AND ORIENT APPROPRIATE SUB-COMMITTEES TO HANDLE THE VARIOUS TASKS AND ENLIST BROADLY REPRESENTATIVE MEMBERSHIP.

C. HEAR AND PUBLICIZE PROGRESS REPORTS AND FINAL RECOMMENDATIONS OF SUB-COMMITTEES.

D. MAKE RECOMMENDATIONS AND ISSUE APPROPRIATE INSTRUMENTS:

The Master Plan for Green Island Site Development.

The Master Checklist, and the Blueprint.

The Program for Implementation.

E. SPECIFICATIONS IN GENERAL

The importance of specification cannot be overstressed since they provide the substance of the directions to the planners, the developers, and to the professional teams who carry them out. The extent and quality of these directions determine what is and what is not left to chance or misinterpretation. Details should be fully explored, preferably within the presence of those who will be responsible for carrying them out.

In arriving at the various kinds of specifications, the committees will want to determine sources of help, such as the local resources, the technical services available, and the reference material. They identify or construct the philosophy and objectives for guiding the committee; inventory the needs and the available resources, and identify the changes and additions required to meet the needs.

F. EDUCATIONAL SPECIFICATIONS

The educational specifications are the organized listing

of the requirements of the instructional program as it is expected to function. The philosophy of the school system and the overall curriculum objectives are indicated, with particular consideration give to their bearing on comprehensive site utilization. An inventory is made of the growth and development requirements of the student population, of the areas of organized knowledge concerned, and of the ways and means to meet their needs. The inventory then becomes the basis for individual and detailed exposition of provisions and uses, feature by feature. Specific learning situations are planned so that students of many subjects may profit. Provision is made for programs to train personnel who will be involved with the various programs which acquaint them with the specifications and their potentials, and which encourage them to incorporate the resources into their own planning.

G. COMMUNITY - USE SPECIFICATIONS

The community-use specifications cover all forms of leisure and recreation which would be beneficial and feasible to public use of the facility. The importance of these specifications can be appreciated, particularly in view of the growing amounts of leisure time available and the increasing population density of settled and developing areas with their snowballing demands on the environment.

A philosophy of community use should be arrived at and objectives derived from it which are compatible with shared uses by the school. An inventory is then made of the features

desired for community use which, when organized, becomes the outline for individual and detailed exposition of provisions and intended uses. Provision is made for the encouragement and participation of community groups in the initial and continuing developments.

H. STEWARDSHIP SPECIFICATIONS

While the educational specifications and the community use specifications are concerned with utilitarian objectives for the site, the stewardship specifications deal with the arrangement and preservation of the site's natural features in a manner complementary to both nature and use. The concept of stewardship grew out of concern for soil conservation in the dust bowl of the 1930's in which erosion was held responsible for depleting both land and people. With the increasing demands we are making on our natural environment and the increasing ability we have to alter it for better or worse, there is today a growing urgency to regard the consequences of our actions, and to seek a balance complementary to nature. When we work with nature with this in mind, the immediate advantages are usually as great as the long-range advantages; we create better conditions at the outset with many built-in economies. These are the objectives of stewardship.

The following principles are set forth as guidelines for developing the stewardship specifications. Some of these principles may seem to be directly opposed to

principles which have been widely accepted, yet a careful consideration of them should indicate that they are logical when considered in the light of the basic philosophy proposed.

I. LAND USAGE SCHEME

While many factors enter into the location of buildings, the land usage scheme should provide identification of areas suitable for types of buildings and for their attendant services: service facilities, playgrounds, walks, drives, parking areas, specialized activity areas. The building itself should have proper foundation support, and be well situated for control of the elements. Topographical variations of the site lend themselves to some kinds of usage better than others. Different elevations serve to isolate one activity from another: a basin can become an athletic compound, a contour can serve as an amphitheatre, a depression or gully can be made into or retained as a wetland area. A balance of good sense and creative thinking can make an asset of a seeming obstacle.

J. NATURAL AREAS

Natural areas, marshlands, rocky areas, brush-covered scrub land and the like, are frequently complicated geobiotic communities, and because of this not generally understood. They should be evaluated, however, with the advice of the U. S. Soil Conservation Service and other governmental agencies dealing with soil, water, vegetation and wildlife

in order to preserve a maximum of natural values in the site plan, and to utilize each aspect effectively.

K. PLANTING SCHEME

The extent and distribution of trees and other vegetation are critical to many of the site elements. Some will be retained for natural and economical reasons. Some will be used and supplemented for wind, snow and water control, for sunlight modification, for sound and visual control, for activity separation, and for pedestrian and vehicle guidance.

Trees can be grouped to control the heat and glare of the sun; for instance, deciduous trees near buildings can block the sun in summer, yet allow its penetrating warmth in winter. They can be useful further in shaping summer breezes for cooling, and in providing sound and visual control of differing activities.

A conservative foundation scheme of arrangement and planting can be made with provisions for the kinds, qualities and locations of additions desired. Through careful planning, the planting scheme not only will be very practical, but will immeasurably enhance the physical environment and the emotional appeal.

L. WATER SCHEME

Control and collection of natural waters on the site can in many cases meet all the water needs of the total facility. The planning scheme will direct new and incoming waters through the subsoil for subsurface irrigation onto grassways. This will eliminate rapid runoff into natural areas for plant and animal life or into drywells or reservoirs for storage and later use.

M. DEMONSTRATION SCHEME

To develop understanding and appreciation of the qualities of nature, the evidences of geological, glacial, biological and human activity should be identified for illustration and demonstration. Exposed layers of earth can become an exhibit. Glacial activity can be identified, described, and located. Biological specimens can be staked and keyed by number for identification, as can evidences of man such as diggings, mounds, paths and fence rows.

N. EDUCATIONAL SITE POLICY GUIDELINE DIRECTIVE

The task of site selection involves the development of criteria by which a site is to be appraised, the development of an instrument by which to make the appraisal, the making of the appraisals, the derivation of preliminary estimates of building space requirements, and the relating of the findings and the site selection report to those of other sub-committees.

The committee members will want to define the policies and procedures to go by, to describe the preliminary steps and to establish the criteria for selection of the site. The policies should indicate the knowledge of the committee members that the nature of the study is preliminary only, and that building space requirements will require further study. Further, there should be an understanding that the major emphasis is to be devoted to the identification and evaluation of several alternative sites, and to an estimate of capital outlay expenditures necessary to provide these facilities.

The procedures should be concerned with definition of the problem, the methods of determining available, desirable sites, the development

of the criteria and of the appraisal instrument, the site visitations themselves and discussions on them, and the final report.

To get at the problem precisely, the assumptions underlying the purposes to be served should be identified. The study group assigned to this task can compose a basic list, then circulate it among the other study groups for their analysis and contributions. The assumptions would be concerned with items such as the extent and variety of programs, the numbers to be served, the housing to occupy the site, the space reserved for future expansion, the minimum acreage required, the site acquisition costs, and the investigation of a number of sites.

The methods of determining available desirable sites can include site nominations by the entire planning group, specific request of persons from each school and governmental unit to make a site nomination from their area, and study of previous research in this geographic area that bears on this task. As the list is developed, discussion can proceed on criteria and the appraisal instrument. When the appraisal instrument is acceptable, it should be duplicated in sufficient quantity for the participants in each site appraisal. It should be organized in sections based on the criteria. The site appraisals should be made of each site by all the study group. The site should be traversed and the appraisal instrument completed, with the addition of any observations felt to be relevant. Of the total number, the most likely two or three sites should be selected for examination by specialists who can give advice concerning the soil, geology, hydrology, biology and architectural values.

The final recommendations are developed from the appraisals of each site by committee members and specialists. The major items of each site are discussed as to how they meet the criteria: Consideration is given to the capital requirements for land purchase. Sites are ranked in order of preference.

O. LEGAL, ORGANIZATIONAL AND FINANCIAL ALTERNATIVES

With various alternatives available to make the site plan a reality, inventories are made of the pertinent legislation, the different organizational patterns, and the possible means of financing it. These are compiled and composed with the assistance of professional consultants and advisors. After thorough study and deliberation, the preferred alternatives are listed with their rationale, and the means are indicated for carrying them out.

P. EXCLUSIVE USE OR SHARED USE

The basic question about organization is whether to establish the site for exclusive use or shared use. In areas of vast, open space and small population, the question may not be so important. But in the more densely populated and growing areas, land use and the ability to develop it with care and responsibility are increasingly important. Comprehensive utilization is possible and likely when cooperative arrangements are made and understood.

Cooperative arrangements have precedent in the state, and are generally encouraged by the provision of state service to requesting agencies. The State Conservation Commission, the State Board of Education and the Secretary of State number among those whose services are available for the asking. University consultants' services are also available at no charge for the first few calls.

When the school board and other governmental units buy, develop and use the site or adjacent sites in partnership or jointly, the facility is available round-the-clock all year, and the costs and services are shared. Complementary activities can be available, and may include a posted nature trail which picnickers may use, and sled and ski slopes for out-of-school recreation. The operational and maintenance services of the one can take over where the other leaves off.

Areas where organizational patterns are established are in Ann Arbor, Coldwater, Midland, Wyoming Township, and Gwinn, Michigan. In Ann Arbor, Coldwater and Midland, Michigan, the school boards have developed extensive sites of their own, and in many cases adjacent sites owned are developed and operated by other public units.

Several concepts which need to be considered in this part of the planning are cost versus investment, effects on the tax base, site efficiency, the values of reserve sites, and the sources of financing.

Q. COST-VERSUS INVESTMENT

Research indicates that schools spend more for site development than for the original purchase price. Initial and timely selection of the most adequate site can save many of the dollars otherwise needed for improvement as well as make an adequate site available for immediate use.

In contrast to the cost of building operation and maintenance of schools, the school site expenditure is an enduring investment that has market value usually greater at the time of resale than it has when purchased. In the thousands of cases of school site sales in Michigan, everyone to date has sold for a profit. In this sense, then, public funds used to purchase and develop school sites should be regarded as long-term investment.

R. EFFECTS ON THE TAX BASE

Additionally, experience has shown that the value of the land around "Green Island" schools is greater because of the desirable advantages offered by living near it. As premium prices are paid for homes and apartments around the site, abnormally increased school taxes are collected on housing units in small but measurable quantities for many years. This "ripple effect" on house taxes can be measured on tax assessment rolls around "good" school sites, golf courses, parks, rivers, clean lakes, and great trees. The "plus" tax collections frequently spread out from a center of a "good" school site like ripples in a pond for an area of many city blocks. These individually small "extra" tax payments on hundreds of real estate parcels can in total, over many years, more than return all the public tax investment used to create "Green Island" school sites.

S. SITE EFFICIENCY

To the extent that the school site is adequate, and that good planning and development have been carried out, the benefits should be reflected in the costs of operation. With less grass to mow, less snow to plow, less mud and dirt to clean up, the costs for maintenance should be less. And with control and usage of the elements in the heating and ventilation planning, the costs for these features should be less also.

T. RESERVE SITES

In the study process, consideration should also be given to the advantages of reserve sites. More than one, perhaps all the sites, investigated may suitably meet the criteria. In that event, the study agencies can well follow the principle of many businesses and industries of reserving land by investing in it for possible future location. Parcels purchased in areas of likely development can be selected for adequacy and economy before urgency modifies both. Or they can be sold or traded for better advantages if and when circumstances warrant.

U. SOURCES OF FINANCE

There are three ways to create a fund from which school sites can be purchased.

A school district may create a sinking fund for capital outlay purposes, including the purchase of school sites.

> A school district may pass a bond issue for a building project and include therein the cost of school sites and site development such as sewer, water, etc.
>
> A school district may transfer 5% of the annual operating budget into the capital outlay account and from these funds purchase lands or buildings.

Another way, recently worked out, allows funding for the purchase of school lands to be done in the following manner:

> An estimate must be made of the amount that might be required for the purchase of school sites over a given period of time, such as the next five or ten years.
>
> The board of education must resolve to present a bond issue for the single purpose of the acquisition of lands.
>
> The bond issue must be voted upon by the local voters in the amount stipulated. Just as with ordinary bond issues, the millage is passed from which the fund can be created.

The bonds are then sold in the usual manner, and the cash put into the school site fund. The sites are then purchased with cash and the board of education can set it aside without use for any number of years, holding it <u>in fee simple</u>. When the

board authorizes a bond issue for the erection and construction of a school building, they also allocate certain funds for the purchase of a site. If this bond issue is passed, the original school site fund is replenished by the money allocated for site in the second bond issue. This principle can be applied over and over again.

Since the Northwest Ordinance of 1787, government has played a significant role in providing land for school purposes. In recent years, federal money has been available for the purchase of sites by public agencies. The Department of Housing and Urban Development for instance, has provided up to half the cost of purchase for that part of the school site that is clearly in addition to the basic site for the school. Other federal agencies also have assistance programs which should be reviewed for current applications.

V. IMPLEMENTATION OF SITE DEVELOPMENT PLANS

Implementation involves the construction of the Master Plan for Green Island Site Development, the establishment of the site, and the provision for phasing in the program in terms of both immediate and long-range steps. The Master Plan, the overall guide for site development, is composed from the results of the tasks assigned. After these results have been compiled, analyzed and evaluated, the edited version is published together with a Checklist and a Blueprint.

A. THE CHECKLIST

The checklist is an outline form of the Master Plan, with columns for noting the condition of the item: (1) in progress, (2) completed. With this instrument, planners have a guide to keep track of what is done and to control the sequence and direction of developments.

B. THE BLUEPRINT

The blueprint is a drawing of the site plan which provides an invaluable graphic summary of present features as well as the layout of all objectives. As an instrument, it will be extremely useful for communication, and therefore, should be well executed and well detailed. It should include both horizontal plane and vertical plane projections of the nature of the land formations, the variety and location of vegetation and water forms, and the scheme for use and activity areas. Specific designation can be made of what, how, and where existing conditions have to be altered--excavation and reforming of land masses, keyed plantations, wildlife habitats, educational and recreational areas, and areas for water collection and circulation.

C. CONTINUING RESPONSIBILITY

The final step in the implementation is the provision for continuing responsiblity. A staff position should be created and an advisory board established.

D. STAFF PERSON

To utilize effectively the school site in the curriculum, the appointment of a qualified person to the school staff is vital. The staff person would be responsible for coordinating the various aspects of the program, articulating its development, and providing continuing leadership in the meeting of its needs. In this way, the intentions behind all the planning would be assured of sustained recognition, and the participation and interest kindled would have continuing encouragement.

E. ADVISORY BOARD

An advisory board would serve to voice public needs and desires, and would provide representation for interest groups in the planning and development of the Green Island School Site. Such a service is invaluable in maintaining the scope of the project and the participation in it.

The advisory board can be appointed by the board of education from the units participating in the site program. It should be small enough to be operational, seven to ten members, yet broad enough to represent all elements of the public, the old, the young, and those in between; the interest groups, and the participating legal agencies.

VI. EDUCATIONAL/COMMUNITY CRITERIA FOR SITE SELECTION

A. THE SITE SHOULD BE LARGE ENOUGH TO SERVE ITS SEVERAL PURPOSES.

Most existing school sites are rightly expected to meet certain

requirements. Many are too small to do so. The compatibility of the educational and the more general public purposes is fortunate, and the needs and expectations of both should be considered.

B. THE SITE SHOULD BE THOUGHTFULLY LOCATED.

Accessibility to the site is a necessary condition and site integrity, its unity and individability, is most desirable for safety and utility.

C. THE SITE SHOULD BE FLEXIBLE.

Provision should be made for normal changes in activities and interests of the users and for future building and further site expansion, if necessary.

D. THE SITE SHOULD HAVE A VARIETY OF TOPOGRAPHY.

Hills, ravines, slopes, ponds, streams provide an abundance of study and experimental opportunities. They also serve the interests of different types of users: climbers and hikers, rockhounds, and bird watchers.

E. THE SITE SHOULD PROVIDE FOR A WELL-DEVELOPED BIOSPHERE.

The beauty and natural utility of trees, shrubs, and vines, as well as other plant habitats which it is desirable to preserve can be protected from the bulldozer. Food plants, ground cover and water can be added to or established to attract birds, small mammals and other animal species.

F. THE SITE SHOULD BE ABLE TO SUPPORT A WELL-DEVELOPED MICROCLIMATE.

Thoughtful and strategic plantings of trees and shrubs can reduce fuel costs and erosion from wind and storms. It can prevent disturbing noises from the environment and glaring sun or reflected light.

G. THE SITE SHOULD ENHANCE THE INSTRUCTIONAL PROGRAM:

A concentrated sample of the natural outdoors within walking distance of the school should provide economically a rich, beautiful, readily available learning laboratory for most curricular areas.

H. FISCAL RESOURCES

While it is obviously a rightful concern for school officials to be cautious in expending public funds for school purposes, still it may be helpful to review some economic aspects of the problem of funding school sites. For example, it has been observed frequently that school officials have been overly concerned about money for site acquisition and development when compared with funds for school buildings. The facts in most school building projects indicate that when expenditures have been analyzed on a square foot basis: (1) Building costs per square foot are from 10 to 100 times greater than are land costs. (2) Monies expended on buildings are non-recoverable. (3) Monies expended in site developments increase the tax base in the surrounding neighborhood. (4) Green Islands become self-liquidating. The ensuing paragraphs will examine some of

these generalizations and others in more detail.

I. SELECTED APPLICATIONS

Use School Funds as an Investment - Public funds used to purchase and develop school sites should be evaluated in the economic sense as a long-term public investment. This idea stands in contrast to most other disbursements of school tax dollars. Monies for salaries and buildings disappear and are non-recoverable. However, when an examination is made of the financial transactions by public school authorities regarding purchase and resale of school lands (sometimes many years apart), it becomes apparent that the public funds invested in land has in reality earned a profit on the invested funds. On the basis of this economic principle, more boards of education can be encouraged to "invest" more public funds in larger and better school sites.

J. SAVE DOLLARS WHEN SELECTING A SITE

Most school sites when acquired are less than desirable for full educational purposes. The lack of shade, the absence of ponds, and the monotony of the scenery make a school site improvement program implicit from the day of purchase. Research indicates that school budgets show more dollars spend for site development than dollars spend for the original purchase of the land. If these values were reversed, there would be less patching needed on the school site.

K. ACQUIRE SCHOOL LAND WITH DUE REGARD TO FUTURE NEEDS

It is the history of school site purchases across this nation that almost all of our existing school buildings are now located on a school site that was adjudged with hindsight as being too small. It is the history of school land use that: sites are used 70 to 100 years before being "sold," and almost every addition to the school's educational program (shops, laboratories, athletics) that evolves over a few decades "adds" greatly to school land requirements. It is the history of school land that most of our present school sites were purchased before the time of wide public use of automobiles, and hence, no provision for "parking" was forecast. Business and industry suffer this same constriction as do our schools; however, many modern businesses have changed their land acquisition policies and invest in adequate "future reserve" lands as they relocate plants and offices. It is equally sound economically for school officials to adopt wiser long-term land investment policies.

L. SCHOOLS CAN FUND LAND PURCHASES THROUGH REVOLVING FUNDS

At the present time, most school districts are unable to find the immediate cash to use for the purchase of school site lands which they know they will need. Many years ago, some school districts were more affluent and were able to save money to put into what was known as a "sinking fund." It was really a savings account, and as needs arose, they were able to purchase sites or buildings. Since 1930, most of the districts have developed a pattern of passing bond

issues for extra millage and of including in these proposals an amount for the school site. Since many of these proposals have been delayed and defeated, this has meant that many school sites have not been purchased in time, and that when they are purchased later, the price of the school site has increased tremendously. There are four ways to create a fund from which school sites can be purchased:

1. A school district may create a sinking fund for capital outlay purposes, including the purchase of school sites.

2. A school district may pass a bond issue for a building project and include therein the cost of school sites and site developments such as sewer, water, etc.

3. A school district may transfer 5% of the annual operating budget into the capital outlay account and from these funds purchase lands or buildings.

Because of the pressure for salaries and other current expenses, school districts frequently are unable to use these methods as sources of funding. Because of these difficulties, a cash or checking account balance for the purchase of school lands can be funded in the following manner:

(a) An estimate must be made of the amount that might be required for the purchase of school sites over a given period of time, such as the next five or ten years.

(b) The board of education must resolve to present a bond issue for the single purpose of the acquisition of lands.

(c) The bond issue must be voted upon by the local voters in the amount stipulated, and, just as with ordinary bond issues, the millage is passed from which the fund can be created.

(d) The bonds can be sold in the usual manner, and the cash can be put into the school site fund. The sites can then be purchased with cash, and of course no taxes are paid on this land. The land can be set aside without use by the board of education for a number of years. They hold it in fee simple. Meanwhile, perhaps a year or two later, the same board of education can authorize a bond issue for the erection and construction of a school building, such as a new high school. In this bond proposal, they also can allocate certain funds for the purchase of a site. If this bond issue

is passed, the original school site fund can be replenished by the money allocated for site in the second bond issue. The procedure can be applied over and over again; there are no legal limitations upon it.

M. INCLUDE THE SCHOOL IN URBAN RENEWAL PLANS

School officials in urban areas must join with other units of government to secure federal funds to raise the standard of living in the community. To leave the schools out of urban renewal plans is to bring up another generation, and a larger generation, who have gone without quality education.

N. INVEST PUBLIC FUNDS IN ADEQUATELY SIZED SCHOOL SITES

Many school districts being inundated by mass housing developments decide to make a second-best compromise on school site acquisition. Small, second-class parcels of land are then acquired as "left-over" pieces from the housing developers. The long-term economic impact of this poor compromise actually increases school budgets for both operation and capital outlay for years to come. In terms of school tax dollars, it can be shown that a school district would have surplus money to invest in, for example, a fifteen-acre elementary school rather than a five-acre site as is commonly done. The

additional houses and the children coming to school from the extra ten acres of land will create school budget demands far in excess of the money required to acquire the extra ten acres and many times the school tax revenue collection on these same additional homes. It is absurd to extend this concept to the acquisition of land area beyond the reasonable needs for school site purchases, but in terms of public funding, this idea can encourage school officials to invest in land on an educationally and economically sound basis.

O. SCHOOLS CAN ACQUIRE LAND INEXPENSIVELY FROM OTHER PUBLIC AGENCIES

One of the problems found in many school districts is that school boards cannot find the money to buy property nor can they find the right pieces of property to purchase for new school buildings. However, it has been possible to acquire additional parcels of land from another subdivision of the state, the Lands Division of the Conservation Department, at little cost to the board of education. The lands held in the name of the school board can be sold, traded, or amalgamated into more adequate school sites and additional school sites. Because of this, it is proposed that school site studies should be expanded to include a study of all such odd parcels of land within school districts held

by divisions of the federal government, the state, the counties, townships, and municipalities to see whether or not these parcels of land can be made available to boards of education for further amalgamation and disposal, so that in the end, more public lands can be put to better public purposes through the schools. While it may be a new thought to many school officials to think that parcels of land are owned within their school district by various other agencies of government, this is actually true. Because these circumstances are largely unknown to school administrators, they have not recognized this possible source of land. Some of this mystery may be cleared up by going back to the early days of 1930 in Michigan. At that time, in the midst of the depression, many parcels of land, from city lots up to old farms and including vast acreages, in fact something over 10 million acres of land, suddenly were repossessed by the government as the private owners abandoned these properties through forced tax sales. These were called categorically "tax-reverted lands." The problem became so large that a special division of government was created at the state level called the Lands Division of the Department of Conservation. This Lands Division was given title to these properties in the name of the State of Michigan.

They were charged with reorganizing these lands, selling them off, putting them back on the tax rolls, and, when all other things failed, turning them into city and state parks or state and national forests. Through similar processes, the federal government also has title to many odd parcels of land. Several thousand of these are in the urban areas of the state; some are as small as half-acre parcels or city lots. Others are odd-shaped pieces in chunks, just left over, so to speak, and abandoned from private ownership. Since 1930, many of these parcels have been sold, traded, and turned into parks, but there still remain thousands of these parcels within our present school districts. These are the lands which we would hope to bring to the attention of the school boards of education across the State of Michigan, for it is our conviction that many of these lands could be put to far better use if the state or federal ownership were transferred to the local boards of education, so that they could assume stewardship over these lands. While many of these parcels in their present size and shape are scattered and are of little value, nevertheless, these could become the parts of the "trading stock" which boards of education could sell, combine, and trade to end up with more and better school site holdings. Likewise, many of these odd pieces could

go back into private ownership and become useful tax base resources for the school districts. Both of these conditions would be far better than the present lack of use of these lands.

VII. THE ADMONITION TO STEWARDSHIP: optimum development, use, and management of school lands

The governing action of boards of education to create public educational policy based upon the major tenet that 'school sites' are 'community land resources'; are to be optimally developed; used and managed for the preservation and enhancement of the Republic. The purpose of public education will be better achieved by wiser use of school sites in accordance with the land use concept that 'What Happens To Land Hapens To People'.

There must be active and broad recognition of man's dependence upon, and man's heritage from, the soil fabric of the world. There must be an enlightened review and resolution of the conflicting and dichotomous values within our society regarding resources and regarding the role of the schools as cultural agencies assigned to bolster these values. And not the least of our nation's neglected and unrecognized resources are the school sites which occur in every hamlet and city across the countryside.

The uneasiness of most of our people is focused on the question, "What is happening to our water?" For man in his life activity demands is never further away in time than

one-half day from the need to quench his thirst. Yet one group of decision-makers seeks to fine "high and dry" school sites; failing that they drain and fill the sites they do purchase and lose the water to the sea, draining this blood-stream from the life cycle of men and plants and all of the land-based biosphere.

Conversely, the meeker-voice policy makers cry out urging school men to save the water and to reuse it and to recycle it by replenishing the underground sources of our wellsprings. Which of these value systems is to prevail in our times and in our nation?

Also, the arm of society called schools has been assigned a task to preserve and reproduce our American heritage. Further, it is given to the younger groups in our population to carry big plans in society forward and up. To aid them, schools are built on school sites, and these aids to learning then are placed in the hands of the educators.

In recent decades, school leaders and school architects have learned competently to weld together instruction programs and school buildings into highly functional entities. But only a microscopic few of these have recognized or comprehended the potential symbiosis between school site resources and the enrichment of the instructional program, the urgency of repairing and improving the biosphere, the broadening of community life onto school sites, and the recognition of the responsibility role of stewardship of public lands.